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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,527	12/16/2005	Masanori Sakai	2342-0139PUS1	6763

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FALLS CHURCH, VA 22040-0747

EXAMINER
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NG, JAMES WAI HEUNG

ART UNIT	PAPER NUMBER
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1763

NOTIFICATION DATE	DELIVERY MODE
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09/28/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

## Office Action Summary

Application No.

10/530,527

Applicant(s)

SAKAI ET AL.

Examiner

James Ng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2007 and 23 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 6-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 9-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 6-8 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 7/18/07.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Newly submitted claims 6-8 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the original claim invention deals with A Substrate Processing Apparatus; whereas, claims 6-8 deals with A Method For Directing Gas Flow.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, **claims 6-8 are withdrawn** from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claim 5 is rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 5 recites limitations of components connected together in different configurations at different instances. It is not clear if applicant is claiming a physical connection between components, or merely gas flow path configurations. Since all components in claim 5 are always physically connected together, it is assumed that the applicant is claiming gas flow path configurations.

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***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-5, 9, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebouitz et al. (US 2002/0033229 A1) in view of Ishizawa et al. (US 6328864 B1).**

**Lebouitz teaches a substrate processing apparatus comprising:**

- i. A reaction chamber (126, Fig. 12); a mass flow controller (141); a gas supply pipe (line from 119 through 101, 141, 105, to 117, then through 106 to junction) in fluid communication with said mass flow controller and said reaction chamber for supplying processing gas from said mass controller to said reaction chamber; at least one valve (105) in said supply pipe; a gas exhaust pipe (line connecting 126 and 128) for exhausting the chamber; a gas reservoir (117) for storing processing gas from said mass flow controller, and selectively supplying the gas to said reaction chamber; a bypass line (line going through 107) in fluid communication with a first point (junction between 141 and 105) in said gas supply pipe between said mass flow controller and said gas reservoir and a second point (junction between 106, 107, 109, and 110) in said gas supply pipe between said gas reservoir and said reaction chamber, said bypass line bypassing said reservoir – **in claims 1, 2 and 3**; said at least one valve comprises a first valve (105) between said first point and said gas reservoir, a second valve (106) between said gas

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reservoir and said second point and a third valve (107) in said bypass line – **claim 4**; a first configuration wherein gas flows from said mass flow controller to said reaction chamber by way of said gas reservoir and not by way of said bypass line, and a second configuration wherein gas flows from said mass flow controller to said reaction chamber by way of said bypass line not by way of said gas reservoir – **claim 5**; at least a first (119) and a second (120) gas supplied alternately into the reaction chamber, when the first gas is supplied, one of the gas reservoir and the bypass line is selected to supply the first gas therefrom and the second gas is supplied from a different supply pipe (line from 120 through 145 and 110 to junction) – **claim 9**. (See, for example, Fig. 12; Para. 59-66)

**Lebouitz does not teach:**

- i. A control unit to control gas flow path selection – **in claims 1 and 2**.

**Ishizawa teaches a substrate processing apparatus comprising:**

- i. A controller (132) that independently controls opening/closing valves as well as flow rate control valves. (Fig. 4; Col. 12, lines 39-43)

**Regarding claims 11 and 12:**

- i. Claim 11 recites the requirement of “valves are respectively controlled such that the first gas is stored in the gas reservoir while the second gas is supplied to the reaction chamber,” and claim 12 recites the requirement of “a pressure in the reaction chamber when the first gas is supplied to the reaction chamber is set higher than a pressure in the

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reaction chamber when the second gas is supplied to the reaction chamber.” These are claim requirements of intended use in the pending apparatus claims that can be performed by the apparatus of Lebouitz and Ishizawa. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Ishizawa’s controller to the apparatus of Lebouitz.

Motivation for adding Ishizawa’s controller to the apparatus of Lebouitz is to provide automation to Lebouitz’s apparatus. Further, it has been held that automation is obvious. (In re Venner, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958); MPEP 2144.04)

**7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lebouitz et al. (US 2002/0033229 A1) in view of Ishizawa et al. (US 6328864 B1) as applied to claims 1-5, 9, 11, and 12 above, and further in view of Shang et al. (US 6182603 B1).**

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**Lebouitz and Ishizawa do not teach:**

- i. The first gas is supplied to the reaction chamber in a state in which the first gas is not excited with plasma, and the second gas is supplied to the reaction chamber in a state in which the second gas is excited with plasma – **claim 10**.

**Shang teaches a substrate processing apparatus comprising:**

- i. A first gas (52) is supplied to the reaction chamber (10) in a state in which the first gas is not excited with plasma, and the second gas (64) is supplied to the reaction chamber in a state in which the second gas is excited with plasma – **claim 10** (Fig. 1; Col. 5, lines 1-28)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Shang's second gas supply system with remote plasma activation to the apparatus of Lebouitz and Ishizawa.

Motivation for adding Shang's second gas supply system with remote plasma activation to the apparatus of Lebouitz and Ishizawa is to provide active species for plasma processing or cleaning.

***Response to Arguments***

8. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

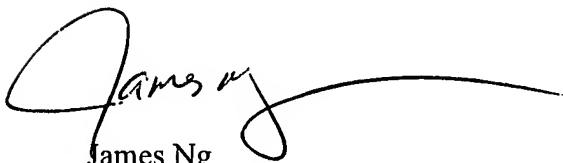
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***Conclusion***

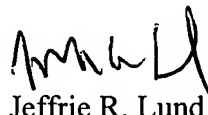
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Ng whose telephone number is 571-272-7088. The examiner can normally be reached on 9:00 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, please call Primary Examiner, Jeffrie R. Lund at 571-272-1437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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